

“Success Is Like A Train. It Has Several Coaches Like Discipline, Hard work, Focus, Skills And Luck.. Leading Them All Is The Engine That Is Self Confidence”

Masiur Rahman

Part-1

PROFIT AND LOSS

IMPORTANT FACTS

COST PRICE: THE PRICE AT WHICH ARTICLE IS PURCHASED.ABBREVIATED AS C.P.

SELLING PRICE: THE PRICE AT WHICH ARTICLE IS SOLD.

PROFIT OR GAIN:IF SP IS GREATER THAN CP,THE SELLING PRICE

IS SAID TO HAVE PROFIT OR GAIN.

LOSS: IF SP IS LESS THAN CP,THE SELLER IS SAID TO INCURRED A LOSS.

FORMULA

1.GAIN=(SP)-(CP). 2.LOSS=(CP)-(SP).

3.LOSS OR GAIN IS ALWAYS RECKONED ON CP

4. $\text{GAIN \%} = \{\text{GAIN} \times 100\} / \text{CP}.$

5. $\text{LOSS \%} = \{\text{LOSS} \times 100\} / \text{CP}.$

6. $\text{SP} = \{(100 + \text{GAIN \%}) / 100\} \times \text{CP}.$

7. $\text{SP} = \{(100 - \text{LOSS \%}) / 100\} \times \text{CP}.$

8. $\{100 / (100 + \text{GAIN \%})\} \times \text{SP}$

9. $\text{CP} = 100 / (100 - \text{LOSS \%}) \times \text{SP}$

10.IF THE ARTICLE IS SOLD AT A GAIN OF SAY 35%, THEN SP =135% OF CP

11.IF A ARTICLE IS SOLD AT A LOSS OF SAY 35%. THEN SP=65% OF CP.

12.WHEN A PERSON SELLS TWO ITEMS,ONE AT A GAIN

OF X% AND OTHER AT A LOSS OF X%. THEN THE SELLER ALWAYS INCURES A LOSS GIVEN:
 $\{\text{LOSS}\% = (\text{COMMON LOSS AND GAIN})^2 / 10 = (X/10)^2$
 13. IF THE TRADER PROFESSES TO SELL HIS GOODS AT CP BUT USES FALSE WEIGHTS, THEN
 $\text{GAIN} = [\text{ERROR} / (\text{TRUE VALUE}) - (\text{ERROR}) * 100]\%$

SOLVED PROBLEMS

ex.1 A man buys an article for rs.27.50 and sells it for rs.28.50. find his gain %.

sol. cp=rs27.50, sp=rs 28.50
 gain=rs(28.50 –27.50)=rs1.10
 so gain%={ (1.10/27.50)*100}=4%

Ex.2. If the a radio is sold for rs 490 and sold for rs 465.50.find loss%.

sol. cp=rs490, sp= 465.50.
 loss=rs(490-465.50)=rs 24.50.
 loss%=[(24.50/490)*100]=5%

Ex.3.find S.P when

(i) CP=56.25, gain=20%.
 sol.

(i) SP =20% of rs 56.25 ,=rs{(120/100)*56.25}=rs67.50.

(ii) CP=rs 80.40, loss=5%

sol: sp=85% of rs 80.40
 =rs {(85/100)*80.40}=rs 68.34.

ex.4 find cp when:

(i) sp =rs 40.60 : gain=16%

(ii) sp=rs51.70:loss=12%

(i) cp=rs{(100/116)*40.60}=rs 35.

(ii) cp=rs{(100/88)*51.87}=rs58.75.

ex.5 A person incures loss for by selling a watch for rs1140.at what price should the watch be sold to earn a 5% profit ?

sol. let the new sp be rsx.then

$(100 - \text{loss}\%) : (1\text{st sp}) = (100 + \text{gain}\%) (2\text{nd sp})$

$$\cdot \{(100-5)/1400\}=\{(100+5)/x\} \Rightarrow x=\{(105*1140)/95\}=1260.$$

ex.6 A book was sold for rs 27.50 with a profit of 10%. if it were sold for rs25.75,

then what would be % of profit or loss?

sol. SP=rs 27.50: profit =10%.

sol. CP=rs $\{(100/110)*27.50\}$ =rs 25

When sp =Rs25.75 ,profit =Rs(25.75-25)=Rs 0.75

Profit%= $\{(0.75/25)*100\}$ %=25/6%=3%

Ex7 .If the cost price is 96% of sp then whqt is the profit %

Sol. sp=Rs100 : then cp=Rs 96:profit =Rs 4.

Profit= $\{(4/96)*100\}$ %=4.17%

Ex.8. The cp of 21 articles is equal to sp of 18 articles.find gain or loss %

CP of each article be Rs 1

CP of 18 articles =Rs18 ,sp of 18 articles =Rs 21.

Gain%= $[(3/18)*100]$ %=50/3%

Ex.9 By selling 33 metres of cloth , one gains the selling price of 11 metres . Find the gain percent .

Sol:

(SP of 33m)-(CP of 33m)=Gain=SP of 11m

SP of 22m = CP of 33m

Let CP of each metre be Re.1 , Then, CP of 22m= Rs.22,SP of 22m=Rs.33.

Gain%= $[(11/22)*100]$ %=50%

Ex10 A vendor bought bananas at 6 for Rs.10 and sold them at Rs.4 for Rs.6 .Find his gain or loss percent .

Sol:

Suppose , number of bananas bought = LCM of 6 and 4=12

CP=Rs. $[(10/6)*12]$ =Rs.20 ; SP= Rs $[(6/4)*12]$ =Rs.18

Loss%= $[(2/20)*100]$ %=10%

Ex.11. A man brought toffees at for a rupee. How many for a rupee must he sell to gain 50%?

Sol. C.P of 3 toffees=Re 1; S.P of 3 toffees =150% of Re.1=3/2.
For Rs.3/2, toffees sold =3, for Re.1, toffees sold = $[3 \times (2/3)] = 2$.

Ex. 12. A grocer purchased 80 kg of sugar at Rs.13.50 per kg and mixed it with

120kg sugar at Rs.16per kg. At what rate should he sell the mixer to gain 16%?

Sol. C.P of 200 kg of mixture = Rs. $(80 \times 13.50 + 120 \times 16) =$
Rs.3000.

S.P =116% Of Rs.3000 =Rs. $[(116/100) \times 3000]$ =Rs.3480.

\therefore Rate of S.P of the mixture =Rs. $[3480/200]$ per kg =Rs.17.40 per kg.

Ex.13. Pure ghee cost Rs.100 per kg. After adulterating it with vegetable oil costing

Rs.50 per kg, A shopkeeper sells the mixture at the rate of Rs.96 per kg, thereby

making a profit of 20%.In What ratio does he mix the two?

Sol. Mean cost price =Rs. $[(100/120) \times 96] =$ Rs.80 per kg.

By the rate of allegation :

C.P of 1kg ghee C.P of 1kg oil

100 50

Mean price

80

30 20

\therefore Required ratio =30:20 =3:2.

Ex. 14. A dishonest dealer professes to sell his goods at cost price but uses a weight

of 960 gms for a kg weight . Find his gain percent.

Sol. Gain% =[Error *100]% = $[(40/960) \times 100]$ % = 4 1 %

(error value)-(error) 6

Ex 15. If the manufacturer gains 10%,the wholesale dealer 15% and the retailer

25% ,then find the cost of production of a ,the retail price of which is Rs.1265?

Sol:

Let the cost of production of the table be Rs x

The ,125% of 115% of 110% of $x=1265$
 $125/100 \times 115/100 \times 110/100 \times x = 1265 \Rightarrow 253/160 \times x = 1265 \Rightarrow x = (1265 \times 160/253)$
 $=Rs.800$

Ex16 . Monika purchased a pressure cooker at 9/10th of its selling price and sold it at 8% more than its S.P .find her gain percent.

Sol:

Let the s.p be Rs. X .then C.P = Rs.9x/10, Receipt=108% of rs.x=Rs 27x/25

Gain=Rs (27x/25*9x/10)=Rs(108x-90x/100)=Rs18x/100

Gain%=(18x/100*10/9x*100)%=20%

Ex .17 An article is sold at certain price. By selling it at 2/3 of its price one losses 10%,find the gain at original price ?

sol:

let the original s.p be Rs x. then now S.P=Rs2x/3,loss=10%

now C.P=Rs20x/27*27/20x*100)%=35%

Ex .18. A tradesman sold an article at a loss of 20%.if the selling price has been increased by Rs100,ther would have been a gain of 5%.what was the cost price of the article?

Sol:

Let C.P be Rs x. then (105% of x)-(80 % of x)=100 or 25% of x=100

• $x/4=100$ or $x=400$

• so,C.P =Rs 400

Ex 19. A man sells an article at a profit of 25%if he had bought it 20% less and sold it for Rs 10.50 less,he would have gained 30%find the cost price of the article.

Sol:

Let the C.P be Rs x

1st S.P=125% of $x = 125x/100 = 5x/4$; 2nd S.P=80% of $x = 80x/100 = 4x/5$

2nd S.P=130% of $4x/5 = (130/100 * 4x/5) = 26x/25$

$\Rightarrow 5x/4 - 26x/25 = 10.50 \cdot x = (10.50 * 100)/21 = 50$

hence C.P=Rs.50

Ex 20. The price of the jewel, passing through three hands, rises on the whole by 65%. If the first and the second sellers 20% and 25% profit respectively find the percentage profit earned by the third seller.

Sol:

Let the original price of the jewel be Rs p and let the profit earned by the third seller be $x\%$

Then, $(100+x)\%$ of 125% OF 120% OF $P = 165\%$ OF P

$$\cdot ((100+X)/100 * 125/100 * 120/100 * P) = (165/100 * P)$$

$$\cdot (100+X) = (165 * 100 * 100) / (125 * 120) = 110 \Rightarrow X = 10\%$$

Ex21 . A man 2 flats for Rs 675958 each. On one he gains 16% while on the other he losses 16%. How much does he gain/loss in the whole transaction?

Sol:

In this case there will be always loss. The selling price is immaterial

Hence, loss % = $(\text{common loss and gain})^2$

$$/10 = (16/10)\% = (64/25)\% = 2.56\%$$

Ex.22. A dealer sold three-fourth of his article at a gain of 20% and remaining at a cost price. Find the gain earned by him at the two transactions.

Sol:

Let the C.P of the whole be Rs x

C.P of $3/4$ th = Rs $3x/4$, C.P of $1/4$ th = Rs $x/4$

$$\cdot \text{total S.P} = \text{Rs } [(120\% \text{ of } 3x/4) + x/4] = \text{Rs } (9x/10 + x/4) = \text{Rs } 23x/20$$

- $\text{gain} = \text{Rs}(23x/20 - x) = \text{Rs } 3x/20$
- $\text{gain}\% = 3x/20 \cdot 1/x \cdot 100\% = 15\%$

Ex 23 ..A man bought a horse and a car riage for Rs 3000.he sold the horse at a gain of 20% and the carriage at a loss of 10%,thereby gaining 2% on the whole.find the cost of the horse.

Sol:

Let the C.p of the horse be Rs.x, then C.P of the carriage
 $= \text{Rs}(3000 - x)$

$20\% \text{ of } x - 10\% \text{ of } (3000 - x) = 2\% \text{ of } 3000$

- $x/5 - (3000 - x)/10 = 60 \Rightarrow .2x - 3000 + x = 600 \Rightarrow .3x + 3600 \Rightarrow x = 1200$
- hence, C.P of the horse = Rs 1200

Ex 24 find the single discount equivalent to a series discount of 20% ,10% and 5%'

sol:

let the marked price be Rs 100

then ,net S.P= 95% of 90% of 80% of Rs 100

$= \text{Rs}(95/100 \cdot 90/100 \cdot 80/100 \cdot 100) = \text{Rs}68.40$

Ex .25 After getting 2 successive discounts, a shirt with a list price of Rs 150 is available at Rs 105. If the second discount is 12.55,find the first discount.

Sol:

Let the first discount be $x\%$

Then, 87.5% of $(100 - x)\%$ of 150= 105

- $87.5/100 \cdot (100 - x)/100 \cdot 150 = 105 \Rightarrow 105 \Rightarrow 100 - x = (105 \cdot 100 \cdot 100) / (150 \cdot 87.5) = 80$
- $x = (100 - 80) = 20$ • first discount = 20%

Ex .26 An uneducated retailer marks all its goods at 50% above the cost price and

thinking that he will still make 25% profit, offers a discount of 25% on the marked price. what is the actual profit on the sales?

Sol:

Let C.P = Rs 100. then, marked price = Rs 100

S.P = 75% of Rs 150 = Rs 112.50

Hence, gain% = 12.50%

Ex 27 . A retailer buys 40 pens at the market price of 36 pens from a wholesaler, if he sells these pens giving a discount of 1%, what is the profit %?

sol:

let the market price of each pen be Rs 1

then, C.P of 40 pens = Rs 36 S.P of 40 pens = 99% of Rs 40 = Rs 39.60

profit % = $\frac{(39.60 - 36) \times 100}{36} = 10\%$

Ex 28 . At what % above C.P must an article be marked so as to gain 33% after allowing a customer a discount of 5%?

Sol

Let C.P be Rs 100. then S.P be Rs 133

Let the market price be Rs x

Then 90% of x = 133 $\Rightarrow \frac{90x}{100} = 133 \Rightarrow x = \frac{133 \times 100}{90} = 140$

Market price = 40% above C.P

Ex .29 . When a producer allows 36% commission on retail price of his product, he earns a profit of 8.8%. what would be his profit % if the commission is reduced by 24%?

Sol:

Let the retail price = Rs 100. then, commission = Rs 36

S.P = Rs (100 - 36) = Rs 64

But, profit = 8.8%

C.P = Rs $\frac{100}{108.8} \times 64 = Rs \frac{1000}{17}$

New commission =Rs12. New S.P=Rs(100-12)Rs 88

Gain=Rs(88-1000/17)=Rs 496/17

Gain%=(496/17*17/1000*100)%=49.6%

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Part-2

PROFIT AND LOSS

Important Facts:

Cost Price: The price at which an article is purchased, is called its cost price, abbreviated as C.P.

Selling Price: The price at which an article is sold, is called its selling price, abbreviated as S.P.

Profit or Gain: If S.P. Is greater than C.P. The seller is said to have a profit or gain.

Loss:if S.P. Is less than C.P., the seller is said to have incurred a loss.

Formulae

1. $\text{Gain} = (\text{S.P} - \text{C.P})$

2. $\text{Loss} = (\text{C.P} - \text{S.P})$

3. Loss or Gain is always reckoned on C.P.

4. $\text{Gain}\% = (\text{gain} * 100) / \text{C.P}$

5. $\text{Loss}\% = (\text{loss} * 100) / \text{C.P}$

6. $\text{S.P} = [(100 + \text{gain}\%) / 100] * \text{C.P}$

7. $\text{S.P} = [(100 - \text{loss}\%) / 100] * \text{C.P}$

8. $\text{C.P} = (100 * \text{S.P}) / (100 + \text{gain}\%)$

9. $\text{C.P} = (100 * \text{S.P}) / (100 - \text{loss}\%)$

10. If an article is sold at a gain of say, 35%, then S.P=135% of C.P.

11. If an article is sold at a loss of say, 35%, then S.P=65% of C.P.

12. When a person sells two similar items, one at a gain of say, x%, and the other at a loss of x%, then the seller always incurs a

loss given by $\text{Loss}\% = [\text{common loss and gain } \%/10]^2 = (x/10)^2$
 13.If a trader professes to sell his goods at cost price, but uses false weight, then $\text{Gain}\% = [(\text{error}/(\text{true value}-\text{error})) * 100]\%$
 14.Net selling price = Marked price - Discount

Simple Problems

1.A man buys an article for Rs.27.50 and sells it for Rs.28.60
 Find the gain percent.

Sol: C.P=Rs 27.50 S.P=Rs 28.60

then $\text{Gain} = \text{S.P} - \text{C.P} = 28.60 - 27.50 = \text{Rs } 1.10$

$\text{Gain}\% = (\text{gain} * 100) / \text{C.P}\%$

$= (1.10 * 100) / 27.50\% = 4\%$

2.If a radio is purchased for Rs 490 and sold for Rs 465.50
 Find the loss%?

Sol: C.P=Rs 490 S.P=Rs 465.50

$\text{Loss} = \text{C.P} - \text{S.P} = 490 - 465.50 = \text{Rs } 24.50$

$\text{Loss}\% = (\text{loss} * 100) / \text{C.P}\%$

$= (24.50 * 100) / 490\% = 5\%$

3.Find S.P when C.P=Rs 56.25 and Gain=20%

Sol: $\text{S.P} = [(100 + \text{gain}\%) / 100] * \text{C.P}$

$\text{S.P} = [(100 + 20) / 100] 56.25 = \text{Rs } 67.50$

4.Find S.P when C.P=Rs 80.40, loss=5%

Sol: $\text{S.P} = [(100 - \text{loss}\%) / 100] * \text{C.P}$

$\text{S.P} = [(100 - 5) / 100] * 80.40 = \text{Rs } 68.34$

5.Find C.P when S.P=Rs 40.60, gain=16%?

Sol: $\text{C.P} = (100 * \text{S.P}) / (100 + \text{gain}\%)$

$\text{C.P} = (100 * 40.60) / (100 + 16) = \text{Rs } 35$

6.Find C.P when S.P=Rs 51.70 , loss=12%?

Sol: $\text{C.P} = (100 * \text{S.P}) / (100 - \text{loss}\%)$

$\text{C.P} = (100 * 51.70) / (100 - 12) = \text{Rs } 58.75$

7.A person incurs 5% loss by selling a watch for Rs 1140 . At what price should the watch be sold to earn 5% profit?

Sol: Let the new S.P be Rs x then,

$(100 - \text{loss}\%):(1^{\text{st}} \text{ S.P.}) = (100 + \text{gain}\%):(2^{\text{nd}} \text{ S.P.})$

$(100 - 5)/1140 = (100 + 5)/x$

$x = (105 \times 1140)/95 = \text{Rs } 1260$

8. If the cost price is 96% of the selling price, then what is the profit percent?

Sol: let S.P. = Rs 100 then C.P. = Rs 96

profit = S.P. - C.P. = 100 - 96 = Rs 4

profit% = $(\text{profit} \times \text{C.P.}) / 100\%$

$= (4 \times 96) / 100 = 4.17\%$

9. A discount dealer professes to sell his goods at cost price but uses a weight of 960 gms for a Kg weight. Find his gain %?

Sol: Gain% = $[(\text{error} \times 100) / (\text{true value} - \text{error})]\%$

$= [(40 \times 100) / (1000 - 40)]\% = 25/6\%$

10. A man sold two flats for Rs 675,958 each. On one he gains 16% while on the other he loses 16%. How much does he gain or lose in the whole transaction?

Sol: loss% = $[\text{common loss or gain} / 10]^2 = (16/10)^2 = 2.56\%$

11. A man sold two cows at Rs 1995 each. On one he lost 10% and

on the other he gained 10%. What is his gain or loss percent?

Sol: If loss% and gain% is equal to 10

then there is no loss or no gain.

12. The price of an article is reduced by 25% in order to restore the price must be increased by ?

Sol: $[x / (100 - x)] \times 100 = [25 / (100 - 25)] \times 100$

$= (25/75) \times 100 = 100/3\%$

13. Two discounts of 40% and 20% equal to a single discount of?

Sol: $\{[(100 - 40)/100] \times [(100 - 20)/100]\}\% = (60 \times 80) / (100 \times 100)\%$

$= 48\%$

single discount is equal to $(100 - 48)\% = 52\%$

Difficult Problems

1. The cost of an article including the sales tax is Rs 616. The rate of sales tax is 10%, if the shopkeeper has made a profit of 12%, then the cost price of the article is?

Sol: 110% of S.P = 616

$$\text{S.P} = (616 \times 100) / 110 = \text{Rs } 560$$

$$\text{C.P} = (100 \times \text{S.P}) / (100 + \text{gain}\%)$$

$$\text{C.P.} = (100 \times 560) / (100 + 12) = \text{Rs } 500$$

2. Sam purchased 20 dozens of toys at the rate of 375 Rs per dozen.

He sold each one of them at the rate of Rs 33. What was his percentage profit?

Sol: C.P of one toy = $\text{Rs } 375 / 12 = \text{Rs } 31.25$

S.P of one toy = Rs 33

$$\text{profit} = \text{S.P} - \text{C.P} = 33 - 31.25 = \text{Rs } 1.75$$

$$\text{profit \%} = (\text{profit} / \text{C.P}) \times 100$$

$$= (1.75 / 31.25) \times 100$$

$$\text{profit\%} = 5.6\%$$

3. Two third of consignment was sold at a profit of 5% and the remainder at a loss of 2%. If the total was Rs 400, the value of the consignment was?

Sol: let the total value be Rs x

$$\text{value of } 2/3 = 2x/3, \text{ value of } 1/3 = x/3$$

total S.P value be Rs x

$$\text{total S.P} = [(105\% \text{ of } 2x/3) + (98\% \text{ of } x/3)]$$

$$= (105 \times 2x) / (100 \times 3) + (98 / 100) \times x / 3$$

$$= 308x / 300$$

$$(308x / 300) - x = 400$$

$$8x / 300 = 400$$

$$x = (300 \times 400) / 8 = \text{Rs } 15000$$

4.Kunal bought a suitcase with 15% discount on the labelled price.

He sold the suitcase for Rs 2880 with 20% profit on the labelled price .At what price did he buy the suitcase?

Sol: let the labelled price be Rs x

then 120% of x=2880

$$x=(2880*100)/120=\text{Rs } 2400$$

C.P=85% of the 2400

$$(85*2400)/100=\text{Rs } 2040$$

5.A tradesman gives 4% discount on the marked price and gives article free for buying every 15 articles and thus gains 35%. The marked price is above the cost price by

Sol: let the C.P of each article be Rs 100

then C.P of 16 articles=Rs (100*16)=Rs 1600

$$\text{S.P of 15 articles} = 1600*(135/100)=\text{Rs } 2160$$

$$\text{S.P of each article} = 2160/15=\text{Rs } 144$$

If S.P is Rs 96, marked price =Rs 100

$$\text{If S.P is Rs } 144, \text{marked price} = (100/96)*144=\text{Rs } 15000$$

therefore marked price=50% above C.P

6.By selling 33m of cloth ,one gains the selling price of 11m.Find the gain percent?

Sol: gain=S.P of 33m-C.P of 33m

$$=11\text{m of S.P}$$

$$\text{S.P of } 22\text{m}=\text{C.P of } 33\text{m}$$

let C.P of each meter be Rs 1,then C.P of 22m=Rs 22

$$\text{S.P of } 22\text{m}=\text{Rs } 33$$

$$\text{gain}=\text{S.P}-\text{C.P}=33-22=\text{Rs } 11$$

$$\text{gain}\%=(\text{gain}/\text{C.P})*100$$

$$=(11/22)*100=50\%$$

7.The price of a jewel, passing through three hands, rises on the whole by 65%.if the first and second sellers earned 20% and 25% profit respectively,find the percentage profit earned by the third seller?

Sol: let the original price of the jewel be Rs P and

let the profit earned by the third seller be x%

then $(100+x)\%$ of 125% of $P=165\%$ of P

$$[(100+x)/100]*(125/100)*(120/100)*P=(165/100)*P$$

$$100+x=(165*100*100)/(125*120)$$

$$100+x=110$$

$$x=10\%$$

8. When a producer allows 36% commission on the retail price of his

product, he earns a profit of 8.8% . What would be his profit percent if the commission is reduced by 24%

Sol: let retail price = Rs 100

commission = Rs 36

$$S.P = \text{retail price} - \text{commission} = 100 - 36 = \text{Rs } 64$$

But profit = 8.8%

$$C.P = (100 * C.P) / (\text{gain} + 100) = (100 * 64) / (100 + 8.8) = \text{Rs } 1000/17$$

new commission = Rs 12

$$\text{new } S.P = 100 - 12 = \text{Rs } 88$$

$$\text{gain} = 88 - (1000/17) = \text{Rs } 496/17$$

$$\text{gain}\% = \text{gain} * 100 / C.P$$

$$= (496 * 17 * 100) / (17 * 1000)$$

$$\text{gain}\% = 49.6\%$$

9. Vikas bought paper sheets for Rs 7200 and spent Rs 200 on transport. Paying Rs 600, he had 330 boxes made, which he sold at Rs 28 each. His profit percentage is

$$\text{Sol: total investments} = 7200 + 200 + 600 = \text{Rs } 8000$$

$$\text{total receipt} = 330 * 28 = \text{Rs } 9240$$

$$\text{gain} = S.P - C.P$$

$$= \text{total receipt} - \text{total investments}$$

$$\text{gain} = 9240 - 8000 = \text{Rs } 1240$$

$$\text{gain}\% = \text{gain} * 100 / C.P = 1240 * 100 / 8000 = 15.5\%$$

10. A person earns 15% on investment but loses 10% on another investment. If the ratio of the two investments be $3:5$, what is the gain or loss on the two investments taken together?

Sol: let the investments be $3x$ and $5x$

then total investment = $8x$

total receipt = 115% of $3x + 90\%$ of $5x$

$$=115*3x/100+90*5x/100=7.95x$$

$$\text{loss}=\text{C.P}-\text{S.P}=8x-7.95x=0.05x$$

$$\text{loss}\% = .05x * 100 / 8x = 0.625\%$$

11. The profit earned by selling an article for Rs 900 is double the loss incurred when the same article is sold for Rs 490 .At what price should the article be sold to make 25% profit?

Sol: let C.P be Rs x

$$900-x=2(x-490)$$

$$3x=1800$$

$$x=\text{Rs } 600$$

C.P=Rs 600 , gain required=25%

$$\text{S.P}=(100+\text{gain}\%)*\text{C.P}/100$$

$$\text{S.P}=(100+25)*600/100=\text{Rs } 750$$

12.If an article is sold at 5% gain instead of 5% loss,the seller gets Rs 6.72 more. The C.P of the article is?

Sol: let C.P be Rs

$$105\% \text{ of } x - 95\% \text{ of } x = 6.72$$

$$(105/100)*x - (95/100)*x = 6.72$$

$$x/10 = 6.72$$

$$x = \text{Rs } 67.21.$$

Masiur Rahman

Part-3

PROFIT AND LOSS

এই অংশের সমাধান গুলোর প্রতীক বিশেষ করে ব্রাকেট, ভাগ, যোগ, বিয়োগ, গুণ এগুলো এলোমেলো অবস্থায় এবং বাদ পরেছে। প্রাকটিস করার সময় ঠিক করে নিবেন।

1. Cost of 3 cricket balls = cost of 2 pairs of leg pads
cost of 3 pairs of leg pads = cost of 2 pairs of gloves
cost of 3 pairs of gloves = cost of 2 cricket bat
if a cricket bat costs Rs.54, what is the cost of a cricket ball?

Ans Rs.16

Basic Formula:

Let us assume

Cricket balls = A ; Leg pads = B ; Gloves = C ; Cricket bat = D

Answer with Explanation:

$$3A = 2B \Rightarrow B = \frac{3}{2}A$$

$$3B = 2C \Rightarrow C = \frac{3}{2}B$$

$$3B = 2C \Rightarrow C = \frac{3}{2}B$$

$$3B = 2C$$

$$= 2$$

$$3 \left(\frac{3}{2}A \right)$$

$$3A = 2C$$

$$C = 4$$

$$9A = 2C$$

$$3C = 2D \Rightarrow D = \frac{3}{2}C$$

$$3C = 2D$$

$$= 2$$

$$3 \left(\frac{3}{2}C \right)$$

$$9A = 2D$$

$$D = 8$$

27 A

$$D = 54 \Rightarrow 54 = 8$$

27 A

A = 16

2. If by selling an article for RS.100, a man gains Rs.15 then his gain percent is

Ans 17 11/17%

Basic Formula:

Cost price = selling price - profit

Answer with Explanation:

Step : 1

Cost price = selling price - profit

$$= 100 - 15 = 85$$

\therefore Profit per cent = 85

$$15 \times 100$$

$$= 300 / 17$$

$$= 17 \frac{11}{17}$$

11 %

3. What is the loss percent if a man loses Rs.10 on selling and article for

Rs.100?

Basic Formula:

Cost price = selling price + loss

Answer with Explanation:

Step : 1

Cost price = selling price + loss

$$= 100 + 10 = 110$$

Step : 2

Loss per cent = 110

$$10 \times 100$$

$$= 11$$

$$100$$

$$= 9 \frac{11}{100}$$

1 %

4. A shopkeeper sold an article for Rs.2564.36. Approximately what was his profit percent if the cost price of the article was Rs.2400?

Basic Formula:

Cost price + Profit = selling price

Answer with Explanation:

Cost price is 2400

Profit is X%

$$\text{ie. } 2400 + 2400 \times \frac{1}{100} \times X = 2564.36$$

$$2400 + 24x = 2564.36$$

$$24x = 2564.36 - 2400$$

$$X = 164.36 / 24$$

$$= 6.848$$

Approximately 7 %

5. A man sold an article for Rs.247.50, thereby gaining 12 ½% .

The cost

of the article was. Rs.220

Basic Formula:

Cost price + Profit = Selling price

Answer with Explanation:

Let us assume cost price is x

$$X + X \times \frac{25}{2} \times \frac{1}{100} = 247.50$$

$$X + \frac{25x}{200} = 247.50 \text{ (taking LCM)}$$

$$200x + 25x = 247.50 \times 200$$

$$225x = 49500$$

$$X = 49500 / 225$$

$$X = 220$$

∴ The cost price is Rs. 220/-

6. A retailer buys a radio for Rs.225. His overhead expenses are Rs.15

he sells the radio for Rs.300. The profit percent of the retailer is

.....Ans25

Basic Formula:

Cost price + profit = selling price

Answer with Explanation:

$$\text{Cost price} = 225 + 15 = 240$$

$$\text{ie., } 240 + X \times 240 \times 1/100 = 300$$

$$240 + 10$$

$$24x = 300$$

(taking LCM)

$$2400 + 24x = 3000$$

$$24x = 3000 - 2400$$

$$24x = 600$$

$$X = 600/24$$

$$\mathbf{X = 25.}$$

7. A shopkeeper bought an article for Rs.319.60. Approximately at what

price should he sell the article to make 25% profit ans Rs.400

Basic Formula:

Answer with Explanation:

Assume cost = 100

$$\text{Profit} = 25 / 125$$

$$100 \Rightarrow 125$$

$$319.60 = ?$$

$$\Rightarrow 100$$

$$319.60 \times 125$$

$$\Rightarrow 399.5$$

$$\Rightarrow \mathbf{400 \text{ approximately.}}$$

8. If the selling price of an article is $4/3$ times its cost price, the profit

percent is ans.... $33 \frac{1}{3}$

Basic Formula:

Answer with Explanation:

Cost price = selling price – profit

Let cost price is x and selling price is $4/3 x$

ie., profit = selling price – cost price

$$= x$$

$$3$$

$$4 - x$$

$$= x/3$$

$$\text{Profit \%} = 100$$

cos

x

tprice

profit

=

x

x

3

$$= 3$$

x x x

100

$$= 3$$

$$100 = 33\frac{1}{3}$$

1 %

9. There would be 10% loss if a to is sold at RS.10.80 per piece.

At what

price should it be sold to earn a profit of 20% ans...Rs.14.40

Basic Formula:

Answer with Explanation:

Step : 1

Assume cost = 100 Assume cost = 100

Loss = 10 / 90 profit = 20 = 120 = ?

90 \Rightarrow 10.80

120 = ?

90

$$120 \times 10.80 = 14.40$$

10. By selling an article for Rs.19.50 a dealer makes a profit of 30% by

how much should he increase his selling price so as to make a profit of 40%

anRs.1.50

Basic Formula:

Answer with Explanation:

Step : 1

Assume cost = 100 Assume cost = 100

Profit = 30 = 130 profit = 40 = 140 = ?

130 = 19.5

140 = ?

$\Rightarrow 130$

$140 \times 19.5 = 21$

ie. Selling price = 21 – 19.5

= Rs. 1.5

11. Rahim buys mangoes at the rate of 3kg for Rs.21 and sells them at

5kg for Rs.50. To earn Rs.102 as profit, he must sell. Ans 34kg

Basic Formula:

Answer with Explanation:

Cost :

3 kg Mangoes Rs. 21 $\Rightarrow 1 \text{ kg} = \text{Rs. } 7$

Selling Cost:

5 kg = 50 $\Rightarrow 1 \text{ kg} = 10$

Difference for 1 kg is $(10-7) = 3$

1 kg = Rs.3

? = Rs.102

$102 / 3 = \mathbf{34 \text{ kg}}$

12. If books bought at prices ranging from Rs.200 to Rs.350 are sold at

prices ranging from Rs.300 to Rs.425, what is the greatest possible profit

that might be made in selling eight books ? ans Rs.1800

Basic Formula:

profit = selling price – cost price

Answer with Explanation:

Let us consider all the eight books are bought at least cost

$200 \times 8 = 1600$

Selling at the highest price

$425 \times 8 = 3400$

$\therefore \text{Profit} = \text{selling price} - \text{cost price}$
 $= 3400 - 1600 = 1800$

13. The cost price of 20 articles is the same as selling price of 15 articles.

The profit percent in the transaction is ans : $33 \frac{1}{3}$

Basic Formula:

Answer with Explanation:

15

$20 - 15 \times 100$

15

$5 \times 100 = 100/3$

$= 33 \frac{1}{3} \%$

14. A man sells 320 mangoes at the cost price of 400 mangoes.
His gain

percent is Ans, 25%

Basic Formula:

Gain percentage = profit / cost price x 100

Answer with Explanation:

$400 - 320 = 80$

320

$80 \times 100 = 25 \%$

15. If the cost price of 12 tables is equal to the selling price of 16 tables,

the loss percent is ans 25%

Basic Formula:

$\frac{\text{selling price}}{\text{cost price} - \text{selling price}}$

$\times 100$

Result is +ve = we get a profit

Result is -ve = we get a loss

Answer with Explanation:

16

$12 - 16 \times 100$

16

$$- 4 \times 100 = -25\%$$

= 25% loss.

16. If the selling price of 18 articles is equal to the CP of 21 articles the

loss or gain percent ans: $16 \frac{2}{3}\%$ loss

Basic Formula:

selling price

cost price – selling price

$\times 100$

Result is +ve = we get a profit

Result is –ve = we get a loss

Answer with Explanation:

18

$21 - 18 \times 100$

18

3×100

$100 / 6 = 50/3$

$= 16 \frac{2}{3}\%$ profit

17. If by selling 100 mangoes the CP of 120 mangoes is realized the gain

percent is ans $6 \frac{1}{11}\%$

Basic Formula:

Answer with Explanation:

Let cost price of each Mango be Re.1

Cost price of 120 Mangoes is Rs. 120

Selling price of 100 Mangoes is rs. 100

Gain is $= \frac{20}{100} \times 100$

$= 20\%$

18. By selling a pen for Rs.15, a man loses one sixteenth of what it costs

him. The cost of the pen is Rs.16

Basic Formula:

Answer with Explanation:

Let us assume cost price is x

$$\text{ie., } x - 15 = 16$$

$$1 \times$$

$$X - 15 = 16$$

$$x$$

$$X - 16$$

$$x = 15$$

$$16$$

$$16x - x = 15$$

$$16$$

$$15x = 15$$

$$X = 15$$

$$15 \times 16$$

$$X = 16$$

19. By selling an article, sheetal earned a profit equal to $\frac{1}{4}$ th of the price

he bought it. If he sold it for Rs.375 what was the cost price and RS.300

Basic Formula:

Selling price = cost price + profit

Answer with Explanation:

Let us cost price is x

$$375 = x + 4$$

$$1 \times$$

$$375 = 4$$

$$4x + x$$

$$375 = 4$$

$$5x$$

$$5$$

$$375 \times 4 = x$$

$$X = 300$$

The cost price is Rs. 300

20. A shopkeeper on selling a pen for Rs.10, loses $\frac{1}{11}$ of what it costs

him. His cost price is and 11.

Basic Formula:

Loss = Cost price – selling price

Answer with Explanation:

Given : Loss is 11

1 of Cost Price

11

$$1 \text{ CP} = \text{CP} - 10$$

$$10 = \text{CP} - 11$$

1 CP

$$10 = 11$$

$$11 \text{ CP} - 1 \text{ CP} \Rightarrow 10 = 11$$

$$10 \text{ CP} \Rightarrow 10$$

$$10 \times 11 = \text{CP}$$

Cost Price = 11

21. A fruit seller purchases oranges at the rate of 3 for Rs.5 and sells them

at 2 for Rs.4. His profit in the transaction is ans 20%

Basic Formula:**Answer with Explanation:**

22. If I purchased 11 books for Rs.10 and sold all the books at the rate of

10 books for Rs.11, the profit percent is ans 21%

Basic Formula:**Answer with Explanation:**

23. A man bought a number of oranges at 3 for a rupee and an equal

number at 2 for a rupee. At what price per dozen should be sell them to

make a profit of 20%?

Answer: Rs.6

Basic Formula:**Answer with Explanation:**

24. A man buys eggs at 2 for Re.1 and an equal number at 3 for Rs.2 and

sells the whole at 5 for Rs.3. His gain or loss per cent is ?

Answer : $2\frac{6}{7}\%$ gain

Basic Formula:

Answer with Explanation:

25. Ajay bought 15 kg of dhal at the rate of Rs.14.50 per kg and 10kg at the rate of Rs.13 per kg. He mixed the two and sold the mixture at the rate of Rs.15 per kg. What was his total gain in this transaction? Answer :Rs. 27.50

Basic Formula:

Answer with Explanation:

15 \rightarrow 14.50

10 \rightarrow 13

The difference rate is

15 (15 – 14.50) \Rightarrow 15 \times 0.50 = 7.5

10 (15 – 13) \Rightarrow 10 \times 2 = 20.0

Total = 27.5

Answer = Rs. 27.50

By mixing two qualities of pulses in the ratio 2:3 and selling the mixture at the rate of Rs.22 per kg a shopkeeper makes a profit of 10%. If the cost of the smaller quantity be Rs.14 per kg, the cost per kg of the large quantity is ?

Answer : Rs 24

Basic Formula:

Answer with Explanation:

26. Toffees are bought at the rate of 3 for a rupee. To gain 50% they must be sold at?

Answer : 2 for a Rupee

Basic Formula:

Cost price + profit = Selling Price

Answer with Explanation:

Let 3 toffees cost price is Re.1

ie. 1 toffee cost price is $\frac{1}{3}$

ie., $\frac{1}{3} + \frac{1}{3} \times 50\% = x$

3

$1 + 3$

$1 \times 50 \times 100$

$1 = x$

3

$1 + 6$

$1 = x$

6

$2 + 1 = x$

$X = 2$

1

2 toffees for a rupee.

The cost price of 12 article is same as selling price of 9 articles.

Then find

the Gain Percentage?

Basic Formula:

Gain Percentage = Profit / cost price x 100

Answer with Explanation:

9

$12 - 9 \times 100$

$3/9 \times 100$

$100/3$

= 33 $\frac{1}{3}$

Alfred buys an old scooter for Rs.4700 and spends Rs.800 on its repairs. If

he sells the scooter for Rs.5800, his gain percent is ?

Basic Formula:

Profit Percentage = Profit / cost price x 100

Answer with Explanation:

Cost price = $4700 + 800 = 5500$

Profit = $5800 - 5500 = 300$

Profit percentage = $300 / 5500 \times 100$
= 5.45%

27. When a plot is sold for Rs. 18,700, the owner loses 15%. At what

price must the plot be sold in order to gain 15%?

Answer : Rs. 25,300

Basic Formula:

Answer with Explanation:

Step : 1

Assume cost = 100 Assume Cost = 100

Loss = 15 = 85 gain = 15 = 115

Sold for Rs. 18,700

$85 \Rightarrow 18700$

$85 = 18,700$ $115 = ?$

To find : $115 = ?$

$85x = 115 \times 18,700$

X = 85

115×18700

X= 25300

If selling price is doubled, the profit triples. Find the profit percent

Answer : 100

Basic Formula:

Answer with Explanation:

The percentage profit earned by selling an article for Rs. 1920 is equal to the

percentage loss incurred by selling the same article for Rs. 1280.

At what

price should the article be sold to make 25% profit?

Answer : Rs. 2000

Basic Formula:

Answer with Explanation:

28. A man bought apples at the rate of 8 for Rs.34 and sold them at the

rate of 12 for Rs.57. How many apples should be sold to earn a net profit of Rs. 45?

Answer : 90

Basic Formula:

Answer with Explanation:

To find cost price per apple:

8 apples = Rs. 34

1 apple = Rs. 4.25

Selling price per apple:

12 apples = Rs. 57

1 apple = Rs. 4.75

Profit per apple = selling price – cost price

$4.75 - 4.25 = .50$

Therefore $X \times 0.50 = 45$

$X = \text{Rs. } 90$

29. A man bought some oranges at Rs.10 per dozen and bought the same

number of oranges at Rs.8 per dozen. He sold these oranges at Rs.11 per

dozen and gained Rs. 120. The total number of oranges bought by him was :

Answer : 60 dozens

Basic Formula:

Answer with Explanation:

Cost price :

1 dozen oranges = Rs. 10

1 dozen oranges = Rs. 8

2 dozen oranges = Rs. 18

1 dozen oranges = Rs. 9

Selling price:

1 dozen oranges = Rs. 11

Profit per dozen is Rs. 2

Therefore $x \text{ dozen} \times \text{profit} = \text{Rs. } 120$

$x = 120/2$

X = 60 dozen

39. A sells a bicycle to B at a profit of 20%. B sells it to C at a profit of 25%.

If C pays Rs.225 for it, the cost price of the bicycle for A is:

Rs.110 Rs.120 Rs.125 **Rs.150**

Basic Formula:

Answer with Explanation:

Selling price for C is Rs. 225

Cost price + profit = 225

$X + 100$

$25x = 225$

$X = 180$

Cost price of B is 180

Selling price of A is 180

Cost price + profit = 180

$Y + 100$

$20y = 180$

$Y = 150$

The cost price of A is Rs. 150/-

40. If 5% more is gained by selling an article for Rs.350 than by selling it for

Rs.340, the cost of the article is:

Rs.50 Rs.160 **Rs.200** Rs.225

Basic Formula:

Cost price + profit = selling price

$X = \text{Cost price}$

$Y = \text{Profit}$

Answer with Explanation:

$X + 100$

$xy = 340 \Rightarrow 100x + xy = 34000$

$X + 100$

$x(y + 5) = 350 \Rightarrow 105x + xy = 35000 (-)$

$-5x = -1000$

X = 200

41. Hemant sold 10 sarees for a total profit of Rs.460 and 12 sarees for a total profit of Rs.144. At what profit per saree should he sell the remaining 20 sarees so that he gets an average profit of Rs.18 per saree?
Rs.7.40 **Rs.7.60** Rs.7.80 Rs.8

Basic Formula:

Answer with Explanation:

42. What is the selling price of a car? If the cost of the car is Rs. 60 and a profit of 10% over selling price is earned?

Basic Formula:

Cost price + profit = Selling Price

Answer with Explanation:

Cost price is Rs. 60

Profit is 10% of Cost Price
100

$10 \times 60 = 6$

Selling Price = CP + Profit
 $= 60 + 6 = 66$

SP is Rs. 66

43. The cost of an item is Rs. 12.60. If the profit is 10% over selling price what is the selling price?

Basic Formula:

Cost price + profit = Selling Price

Answer with Explanation:

Cost Price = 12.60

Profit = 10% of CP
 $= 100$

10×12.60

$= 100$

$126 = 1.26$

Selling Price = CP + Profit
 $= 12.60 + 1.26$

= 13.86

44. A man gains 10% by selling a certain article for a certain price. If he sells it at double the price, the profit made is :

Answer : 120%

Basic Formula:

Answer with Explanation:

45. Kanaka owns a plot worth Rs.10,000. He sells it to Raman at 10% profit

Raman sells the plot back to Kanaka at a loss of 10%. In the whole

transaction Kanaka gets :

Answer : Rs.1,100

Basic Formula:

Answer with Explanation:

46. Profit after selling a commodity for Rs. 425 is the same as the loss after

selling it for Rs. 355. What is the cost of the commodity?

Answer : 390

Basic Formula:

Profit = Selling Price – Cost Price

Answer with Explanation:

Assume cost Price = x

$P = 425 - x$

$P \Rightarrow 425 - x = 355 + x$

$425 - 355 = 2x$

$70 = 2x$

$x = 35$

$P = 425 - 35 = \mathbf{390}$

47. An article when sold at a gain of 5% yields Rs.15 more than when sold

at a loss of 5%. What is the cost price?

Answer : Rs.150

Basic Formula:

Answer with Explanation:

Let the cost price is x

5% gain \Rightarrow 100

$100 + 5 = 100$

105

5% loss = 100

$100 - 5 = 100$

95

100

$105x - 100$

$95x = 15$

100

$105x - 95x = 15$

100

$10x = 15$

$X = 10$

$1500 = 150$

48. A reduction of 25% in the price of eggs will enable one to buy 4 dozen

more eggs for Rs.96. What is the price per dozen?

Answer : Rs.8

Basic Formula:

Answer with Explanation:

49. If an article is sold at 5% gain instead of 5% loss, the seller gets Rs.6.72

more. The Cost Price of the article is :

Answer : Rs.67.20

Basic Formula:

Answer with Explanation:

50. Two-third of a consignment was sold at a profit of 5% and the remainder

at a loss of 2%. If the total profit was Rs.400, the value of the consignment

(in rupees) was : Rs. 15,000

Basic Formula:**Answer with Explanation:**

Let the value of the consignment is Rs. X

3

$$2 \times X \times 5\% - 3$$

$$1 \times X \times 2\% = 400$$

3

$$2x \times 100$$

$$5 - 3$$

$$x \times 100$$

$$2 = 400$$

$$300$$

$$10x - 300$$

$$2x = 400$$

$$300$$

$$8x = 400 \Rightarrow 8x = 120000$$

$$X = 120000/8 = \mathbf{15000}$$

Masiur Rahman

Part-4

PROFIT AND LOSS

1. Alfred buys an old scooter for Rs. 4700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5800, his gain percent is:

A. 447% B. 5151%

C. 10% D. 12%

[Answer & Explanation](#)

Answer: Option B

Explanation:

Cost Price (C.P.) = Rs. (4700 + 800) = Rs. 5500.

Selling Price (S.P.) = Rs. 5800.

Gain = (S.P.) - (C.P.) = Rs. (5800 - 5500) = Rs. 300.

Gain % =

300

x 100

%

= 5

5

5500 11%

2. The cost price of 20 articles is the same as the selling price of x articles. If the profit is

25%, then the value of x is:

A. 15 B. 16

C. 18 D. 25

[Answer & Explanation](#)

Answer: Option B

Explanation:

Let C.P. of each article be Re. 1 C.P. of x articles = Rs. x.

S.P. of x articles = Rs. 20.

Profit = Rs. (20 - x).

20 -

$$x \times 100 = 25$$

x

$$2000 - 100x = 25x$$

$$125x = 2000$$

$$x = 16.$$

3. If selling price is doubled, the profit triples. Find the profit percent.

A.662 B.100

3

C.10513

D.120

[Answer & Explanation](#)

Answer: Option B

Explanation:

Let C.P. be Rs. x and S.P. be Rs. y.

Then, $3(y - x) = (2y - x)$ $y = 2x$.

Profit = Rs. $(y - x) = \text{Rs. } (2x - x) = \text{Rs. } x$.

Profit % =

x

$$x \times 100$$

$$x \% = 100\%$$

4. In a certain store, the profit is 320% of the cost. If the cost increases by 25% but the selling price remains constant, approximately what percentage of the selling price is the profit?

A.30% B.70%

C.100% D.250%

[Answer & Explanation](#)

Answer: Option B

Explanation:

Let C.P.= Rs. 100. Then, Profit = Rs. 320, S.P. = Rs. 420.

New C.P. = 125% of Rs. 100 = Rs. 125

New S.P. = Rs. 420.

Profit = Rs. $(420 - 125) = \text{Rs. } 295$.

Required percentage =

295

x 100

%

=

1475

420 21 % = 70% (approximately).

5. A vendor bought toffees at 6 for a rupee. How many for a rupee must he sell to gain 20%?

A.3 B.4

C.5 D.6

[Answer & Explanation](#)

Answer: Option C

Explanation:

C.P. of 6 toffees = Re. 1

S.P. of 6 toffees = 120% of Re. 1 = Rs.65

For Rs.65, toffees sold = 6.

For Re. 1, toffees sold = $6 \times \frac{65}{100} = 5$.

6. The percentage profit earned by selling an article for Rs. 1920 is equal to the percentage loss incurred by selling the same article for Rs. 1280. At what price should the article be sold to make 25% profit?

A.Rs. 2000 B.Rs. 2200

C.Rs. 2400 D.Data inadequate

[Answer & Explanation](#)

Answer: Option A

Explanation:

Let C.P. be Rs. x.

Then,

1920 -

$x \times 100 = x - 1280 \times 100$

x x

1920 - x = x - 1280

2x = 3200

$$x = 1600$$

Required S.P. = 125% of Rs. 1600 = Rs. 110205x 1600 = Rs 2000.

[View Answer](#)

7. A shopkeeper expects a gain of 22.5% on his cost price. If in a week, his sale was of Rs. 392, what was his profit?

[A.](#)Rs. 18.20 [B.](#)Rs. 70

[C.](#)Rs. 72 [D.](#)Rs. 88.25

[Answer & Explanation](#)

Answer: Option **C**

Explanation:

$$\text{C.P.} = \text{Rs. } 112020.5 \times 392 = \text{Rs. } 11020205 \times 392 = \text{Rs. } 320$$

$$\text{Profit} = \text{Rs. } (392 - 320) = \text{Rs. } 72.$$

8. A man buys a cycle for Rs. 1400 and sells it at a loss of 15%. What is the selling price of the cycle?

[A.](#)Rs. 1090 [B.](#)Rs. 1160

[C.](#)Rs. 1190 [D.](#)Rs. 1202

[Answer & Explanation](#)

Answer: Option **C**

Explanation:

$$\text{S.P.} = 85\% \text{ of Rs. } 1400 = \text{Rs. } 85 \text{ } 100 \times 1400 = \text{Rs. } 1190$$

9. Sam purchased 20 dozens of toys at the rate of Rs. 375 per dozen. He sold each one of them at the rate of Rs. 33. What was his percentage profit?

[A.](#)3.5 [B.](#)4.5

[C.](#)5.6 [D.](#)6.5

[Answer & Explanation](#)

Answer: Option **C**

Explanation:

$$\text{Cost Price of 1 toy} = \text{Rs. } 31725 = \text{Rs. } 31.25$$

$$\text{Selling Price of 1 toy} = \text{Rs. } 33$$

$$\text{So, Gain} = \text{Rs. } (33 - 31.25) = \text{Rs. } 1.75$$

$$\text{Profit \%} =$$

1.75
x 100
%

=

28

31.25 5 % = 5.6%

10. Some articles were bought at 6 articles for Rs. 5 and sold at 5 articles for Rs. 6. Gain

percent is:

A.30% B.331%

3

C.35% D.44%

Answer & Explanation

Answer: Option D

Explanation:

Suppose, number of articles bought = L.C.M. of 6 and 5 = 30.

C.P. of 30 articles = Rs. 56x 30 = Rs. 25.

S.P. of 30 articles = Rs. 56x 30 = Rs. 36.

Gain % =

11

x 100

% = 44%.

11. On selling 17 balls at Rs. 720, there is a loss equal to the cost price of 5 balls. The cost

price of a ball is:

A.Rs. 45 B.Rs. 50

C.Rs. 55 D.Rs. 60

Answer & Explanation

Answer: Option D

Explanation:

(C.P. of 17 balls) - (S.P. of 17 balls) = (C.P. of 5 balls)

C.P. of 12 balls = S.P. of 17 balls = Rs.720.

C.P. of 1 ball = Rs. 71220 = Rs. 60.

12. When a plot is sold for Rs. 18,700, the owner loses 15%. At what price must that plot be

sold in order to gain 15%?

A.Rs. 21,000 B.Rs. 22,500

C.Rs. 25,300 D.Rs. 25,800

[Answer & Explanation](#)

Answer: Option C

Explanation:

$$85 : 18700 = 115 : x$$

$$x = 18700 \times \frac{115}{85} = 25300.$$

Hence, S.P. = Rs. 25,300.

13. 100 oranges are bought at the rate of Rs. 350 and sold at the rate of Rs. 48 per dozen. The percentage of profit or loss is:

A.1427% gain B.15% gain

C.1427% loss D.15 % loss

[Answer & Explanation](#)

Answer: Option A

Explanation:

C.P. of 1 orange = Rs. $\frac{350}{100}$ = Rs. 3.50

S.P. of 1 orange = Rs. $\frac{48}{12}$ = Rs. 4

Gain% =

$$\frac{4 - 3.50}{3.50} \times 100$$

$$= \frac{0.50}{3.50} \times 100$$

$$= \frac{50}{70} \times 100$$

$$= \frac{500}{7} \%$$

$$= 71.42\%$$

$$= 71.42\%$$

$$= 71.42\%$$

$$= 71.42\%$$

14. A shopkeeper sells one transistor for Rs. 840 at a gain of 20% and another for Rs. 960 at a loss of 4%. His total gain or loss percent is:

A.51157% loss B.51157% gain

C.623% gain D.None of these

[Answer & Explanation](#)

Answer: Option B

Explanation:

C.P. of 1st transistor = Rs. 110200×840 = Rs. 700.

C.P. of 2nd transistor = Rs. 19060×960 = Rs. 1000

So, total C.P. = Rs. $(700 + 1000)$ = Rs. 1700.

Total S.P. = Rs. $(840 + 960)$ = Rs. 1800.

Gain % =

100

$\times 100$

%

= 5

15

1700 17%

15. A trader mixes 26 kg of rice at Rs. 20 per kg with 30 kg of rice of other variety at Rs. 36

per kg and sells the mixture at Rs. 30 per kg. His profit percent is:

A.No profit, no loss B.5%

C.8% D.10%

E.None of these

Answer & Explanation

Answer: Option B

Explanation:

C.P. of 56 kg rice = Rs. $(26 \times 20 + 30 \times 36)$ = Rs. $(520 + 1080)$ = Rs. 1600.

S.P. of 56 kg rice = Rs. (56×30) = Rs. 1680.

Gain =

80

$\times 100\% = 8\%$

Masiur Rahman

Part-5

PROFIT AND LOSS

1. Cost of 3 cricket balls = cost of 2 pairs of leg pads
cost of 3 pairs of leg pads = cost of 2 pairs of gloves
cost of 3 pairs of gloves = cost of 2 cricket bat
if a cricket bat costs Rs.54, what is the cost of a cricket ball?
Rs.16
2. If by selling an article for RS.100, a man gains Rs.15 then his gain percent is
Ans 17 11/17%
3. What is the loss percent if a man loses Rs.10 on selling an article for Rs.100?
4. A shopkeeper sold an article for Rs.2564.36. Approximately what was his profit percent if the cost price of the article was Rs.2400?
5. When a commodity is sold for Rs.34.80 there is a loss of 25% what is the cost price of the commodity? Ans 7
6. A man sold an article for Rs.247.50, thereby gaining 12 ½% . The cost of the article was. Rs.220
7. A retailer buys a radio for Rs.225. His overhead expenses are Rs.15 he sells the radio for Rs.300. The profit percent of the retailer isAns25
8. A shopkeeper bought an article for Rs.319.60. Approximately at what price should he sell the article to make 25% profit ans Rs.400
9. If the selling price of an article is $\frac{4}{3}$ times its cost price, the profit percent is
ans.... $33 \frac{1}{3}$

10. There would be 10% loss if a to is sold at RS.10.80 per piece.
At what price
should it be sold to earn a profit of 20% ans...Rs.14.40
11. By selling an article for Rs.19.50 a dealer makes a profit of 30% by how much
should he increase his selling price so as to make a profit of 40%
ans....Rs.1.50
12. Rahim buys mangoes at the rate of 3kg for Rs.21 and sells them at 5kg for Rs.50.
To earn Rs.102 as profit, he must sell. Ans 34kg
13. If books bought at prices ranging from Rs.200 to Rs.350 are sold at prices ranging from Rs.300 to Rs.425, what is the greatest possible profit that might be made in selling eight books ? ans Rs.1800
14. The cost price of 20 articles is the same as selling price of 15 articles. The profit percent in the transaction is ans : $33 \frac{1}{3}$
15. A amn sells 320 mangoes at the cost price of 400 mangoes. His gain perecent is
Ans, 25%
16. If the cost price of 12 tables is equal to the selling price of 16 tables, the loss percent is ans 25%
17. If the selling price of 18 articles is equal to the CP of 21 articles the loss or gain percent ans: $16 \frac{2}{3}$ % loss
18. A man sold 250 chairs and had a gain equal to selling price of 50 chairs. His profit percent is ans: 25%
19. If by selling 100 mangoes the CP of 120 mangoes is realized the gain percent is
ans $6 \frac{1}{11}$ %
20. A vendor loses the SP of 4 oranges on selling 36 oranges. His loss percent is Ans:

21. By selling a pen for Rs.15, a man loses one sixteenth of what it costs him. The cost of the pen is Rs.16
22. By selling an article, sheetal earned a profit equal to $\frac{1}{4}$ th of the price he bought it. If he sold it for Rs.375 what was the cost price ans RS.300
23. A shopkeeper on selling a pen for Rs.10, loses $\frac{1}{11}$ of what it costs him. His cost price is ans 11.
24. A fruit seller purchases oranges at the rate of 3 for Rs.5 and sells them at 2 for Rs.4. His profit in the transaction is ans 20%
25. If I purchased 11 books for Rs.10 and sold all the books at the rate of 10 books for Rs.11, the profit percent is ans 21%
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Talent And Looks Is God-Given

Be Thankful...

Fame And Money Is Man-Given

Be Grateful...

Attitude And Ego Is Self-Given

Be Careful...

Masiur Rahman

M.Sc (Mathematics)

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